

Case 3563***Pachylemur* Lamberton, 1948 (Primates, LEMURIDAE): proposed conservation of the generic name**

Jelle Zijlstra

Rijnzichtweg 153, 2342 AZ Oegstgeest, The Netherlands
(e-mail: jelle.zijlstra@college.harvard.edu)

Colin Groves

School of Archaeology & Anthropology, Building 14, Australian National University, Canberra, ACT 0200, Australia
(e-mail: Colin.Groves@anu.edu.au)

Alex Dunkel

7305 Calibre Park Dr. #102, Durham, NC, U.S.A.
(e-mail: visionholder@gmail.com)

Abstract. The purpose of this application, under Articles 23.9.3, 81.1 and 81.2.3 of the Code, is to conserve the name *Pachylemur* Lamberton, 1948 (Primates, LEMURIDAE), a genus of subfossil Malagasy lemurs, by suppressing the senior subjective synonym *Palaeochirogalus* Grandidier, 1899 and by designating a type species for the genus *Pachylemur* Lamberton. *Palaeochirogalus* Grandidier has never seen any substantial usage whereas *Pachylemur* Lamberton, 1948 is in universal use; however, *Pachylemur* Lamberton, 1948 is unavailable because no type species was designated in the original publication. Filhol (1874) previously used the name *Pachylemur* for a 'groupe' of Paleogene primates; we conclude that this name, under either Filhol's or Palmer's (1904) authorship and, in either case, ambiguous as regards availability should be formally suppressed at the genus-group level to prevent confusion.

Keywords. Nomenclature; taxonomy; LEMURIDAE; *Palaeochirogalus*; *Pachylemur*; *Pachylemur insignis*; lemur; Madagascar.

1. Filhol (1874, p. 18) introduced the name *Pachylemur* for a group of ancient primate-like mammals: 'Ce groupe, je proposerai de le désigner sous le nom de *Pachylemur*, et j'y placerai le *Palæolemur Bettilei*, l'*Adapis*, l'*Aphelotherium*, l'animal dont je viens de donner la description et les divers Lémuriens signalés jusqu'ici en Amérique'. He called *Pachylemur* a 'groupe' (group) and 'type zoologique' (zoological type) and explicitly included genera ('genres') within the 'groupe' (also Filhol, 1874, p. 18; outside the passage quoted above). Thus he apparently did not intend *Pachylemur* as a generic name; the possibility remains, however, that it could be construed as a generic name proposed for a series of taxa at subgeneric level. If *Pachylemur* Filhol, 1874 is construed as a family-group name, it is unavailable in the absence of an available type genus and because it is not a noun in the nominative plural (Article 11.7.1.1 of the Code).

2. Miall (1875, p. 267), in a *Geological Record* summary of Filhol's paper, wrote that Filhol had ' [p]ropose[d] a new group, *Pachylemuridæ*'. Under Article 11.7.1.1 of the Code, the name PACHYLEMURIDAE Miall, 1875 is apparently unavailable because it was not based on an available generic name and the type genus was not 'a name then used as valid in the new family-group taxon'. However, although Miall (1875) clearly considered it to have been proposed for a taxon in the family-group, if *Pachylemur* Filhol, 1874 were to be regarded as an available generic name, then under Article 11.7.1.1 of the Code, the name PACHYLEMURIDAE Miall, 1875 may also be available. Although this family name is not in current use under any authorship, its ambiguous status may at some time become destabilizing.

3. Gervais (1876, p. 36) transferred the species *Adapis magnus* Filhol, 1874 (p. 18) to a new genus. He considered using the name *Pachylemur* Filhol for this genus, but rejected it and proposed the new name *Leptadapis* instead. Under Article 11.5, *Pachylemur* Gervais, 1876 is unavailable because it was not used as a valid name.

4. Palmer (1904, p. 494), in his *Index generum mammalium*, listed '*Pachylemur* Gervais, 1876', and wrote that Filhol (1874) had used *Pachylemur* as a family. On p. 890, he listed the type of *Pachylemur* as *Adapis magnus* Filhol, but provided a cross-reference to *Leptadapis*. As Palmer (1904, p. 10) indicated, his work lists both synonyms and valid names without distinguishing them, so the presence of *Pachylemur* in his index does not constitute evidence that he used the name as valid. Palmer (1904, p. 785) wrote that he had included cross-references with at least some synonyms listed in Part III of his work; thus, the cross-reference to *Leptadapis* on p. 890 (in Part III) further suggests that he did not use *Pachylemur* as valid. If not, *Pachylemur* Palmer, 1904 is unavailable under Article 11.5 of the Code; however, the evidence is ambiguous, and a ruling by the Commission on its unavailability is desired. Palmer (1904, pp. 760, 890) also listed the family-group name PACHYLEMURIDAE, but if its type genus *Pachylemur* was not used as valid, this family name is unavailable under Article 11.7.1.1 of the Code.

5. Some other authors, mainly in the 19th and early 20th centuries (e.g. Flower, 1876 and various reprints of that paper; Claus, 1883), have mentioned *Pachylemur* Filhol or one of its derivatives, but we know of none that could be construed to have made the name available.

6. Grandidier (1899, p. 345) named a new genus and species of subfossil lemur as '*Palaeochirogalus Jullyi*' (here corrected to *Palaeochirogalus jullyi* following Articles 5.1 and 32.5.2.5 of the Code). Some subsequent authors used the genus name as valid (e.g. Lorenz von Liburnau, 1901), and Smith (1903, pp. 324, 336, 508) recombined it as *Lemur jullyi*. Grandidier (1905, p. 78) then synonymised his *Palaeochirogalus jullyi* with *Lemur insignis* Filhol, 1895. As far as we are aware, *Palaeochirogalus* has not been used as a valid name in the taxonomic literature since 1905. In the meantime, Standing (1904, p. 306) had named a new species, *Lemur jullyi*, without mentioning Grandidier's species of the same name.

7. Lamberton (1948, p. 7) proposed *Pachylemur* as a new subgeneric name for the extinct species *Lemur insignis*, *L. majori* Standing, 1908 and *L. jullyi*, without mentioning either *Pachylemur* Filhol or *Palaeochirogalus*. He did not specify whether his '*Lemur jullyi*' was based on *Palaeochirogalus jullyi* Grandidier or *Lemur jullyi* Standing. Lamberton did not designate a type species, and the name is therefore

unavailable under Article 13.3 of the Code; nevertheless, many subsequent authors have used it (see below). Although it was originally proposed as a subgenus and recognized as such until the 1970s, most authors have recognized *Pachylemur* Lamberton as a valid genus since Tardieu & Jouffroy (1979). Tattersall (1982, pp. 240–241) discussed the nomenclature of the two species of *Pachylemur*: a smaller species from southern lowland Madagascar, *Lemur insignis* Filhol, 1895, and a larger species from the Central Highlands, known as *Lemur jullyi* Standing, 1904 (by then including *Lemur majori* Standing, 1908). He argued that *Palaeochirogalus jullyi* Grandidier (which had previously been seen as a synonym of *L. insignis*) was in fact probably conspecific with *Lemur jullyi* Standing, which it also preoccupies. Therefore, he attributed *Lemur jullyi* to Grandidier (1899) instead. Most workers since then have also recognized two species, *P. insignis* (Filhol, 1895) and *P. jullyi* (Grandidier, 1899), although some have expressed doubts that the two are specifically distinct (reviewed by Godfrey & Jungers, 2002; Godfrey et al., 2010).

8. The name *Pachylemur* Lamberton, 1948, is now in universal usage in the scientific literature about lemurs for *Lemur insignis* Filhol, 1895 and related species (e.g. Godfrey et al., 1990; Jungers et al., 1991; Simons et al., 1995; Jungers et al., 1995; Godfrey et al., 1995; Shoshani et al., 1996; Godfrey & Jungers, 2002; Burney et al., 2004; Perez et al., 2005; Shapiro et al., 2005; Godfrey & Irwin, 2007; Burney et al., 2008; Orlando et al., 2008; Mittermeier et al., 2008; Gommery et al., 2009; Polk et al., 2009; Turvey, 2009; Godfrey et al., 2010; Virah-Sawmy et al., 2010; Crowley et al., 2011). Unlike some other extinct and extant lemur genera, *Pachylemur* lacks a well-established common name. If the name were to be replaced because it is predated by *Palaeochirogalus*, or preoccupied by one of the older uses of *Pachylemur*, or simply unavailable, it would cause considerable confusion and instability. The name *Palaeochirogalus* would be an especially unfortunate replacement for *Pachylemur*, since it is based on the generic name of the dwarf lemurs, *Cheirogaleus* Geoffroy, 1812; this name was frequently spelled *Chirogalus* in the 19th century and Grandidier (1899) himself used the French vernacular form ‘Chirogales’. *Pachylemur* is no longer considered to be closely related to the dwarf lemurs, which are now placed in a different family. The two most pressing threats to prevailing usage are the subjective senior synonym *Palaeochirogalus* Grandidier, 1899 and the unavailability of *Pachylemur* Lamberton, 1948. Since *Pachylemur* of Filhol, 1874 could perhaps be construed as having been proposed at genus-group level, it should be suppressed. *Pachylemur* of Gervais and family-group names based on it are clearly not available, so we do not request action from the Commission concerning these names. *Pachylemur* Palmer may be interpreted as only questionably unavailable; hence its suppression is requested. By suppressing both *Pachylemur* Filhol, 1874 and *Pachylemur* Palmer, 1904 at the genus level, the family-level names PACHYLEMURIDAE Miall, 1875 and PACHYLEMURIDAE Palmer, 1904, even if either is regarded as available, will become invalid under Article 39 of the Code. We propose that prevailing usage of the generic name be maintained by retroactively making the name *Pachylemur* Lamberton, 1948 available, and suppressing *Palaeochirogalus* Grandidier. No type species of *Pachylemur* Lamberton, 1948 has apparently ever been designated; we request that the Commission designate *Lemur insignis* Filhol, 1895 as the type species, as it was the first species of the genus to be described and the only one to be recognized as valid by all authors (e.g. Tattersall, 1973).

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power:
 - (a) to suppress the following generic names for the purposes of both the Principle of Priority and Principle of Homonymy;
 - (i) *Pachylemur* Filhol, 1874;
 - (ii) *Pachylemur* Palmer, 1904;
 - (b) to suppress the generic name *Palaeochirogalus* Grandidier, 1899 for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
 - (c) to rule that the name *Pachylemur* Lamberton, 1948 is available from its original publication;
 - (d) to set aside all previous type species fixations for *Pachylemur* Lamberton, 1948 and designate *Lemur insignis* Filhol, 1895 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Pachylemur* Lamberton, 1948, type species *Lemur insignis* Filhol, 1895, as ruled in (1)(c) and (1)(d) above;
- (3) to place on the Official List of Specific Names in Zoology the name *insignis* Filhol, 1895, as published in the binomen *Lemur insignis*, specific name of the type species of *Pachylemur* Lamberton, 1948, as ruled in (1)(d) above.
- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:
 - (a) *Pachylemur* Filhol, 1874, as suppressed in (1)(a)(i) above;
 - (b) *Pachylemur* Palmer, 1904, as suppressed in (1)(a)(ii) above;
 - (c) *Palaeochirogalus* Grandidier, 1899, as suppressed in (1)(b) above.

References

- Burney, D.A., Burney, L.P., Godfrey, L.R., Jungers, W.L., Goodman, S.M., Wright, H.T. & Jull, A.J.T. 2004. A chronology for late prehistoric Madagascar. *Journal of Human Evolution*, **47**: 25–63.
- Burney, D.A., Vasey, N., Godfrey, L.R., Ramilisonina, Jungers, W.L., Ramarolahy, M. & Raharivony, L. 2008. New findings at Andrahomana cave, southeastern Madagascar. *Journal of Cave and Karst Studies*, **70**: 13–24.
- Claus, C. 1883. *Lehrbuch der Zoologie*. 857 pp. N. G. Elwert'sche Verlagsbuchhandlung, Marburg & Leipzig.
- Crowley, B.E., Godfrey, L.R. & Irwin, M.T. 2011. A glance to the past: subfossils, stable isotopes, seed dispersal, and lemur species loss in Southern Madagascar. *American Journal of Primatology*, **73**: 25–37.
- Filhol, H. 1874. Nouvelles observations sur les mammifères des gisements de phosphates de chaux (Lémuriens et Pachylémuriens). *Annales des Sciences Géologiques*, **5**: 1–36.
- Filhol, H. 1895. Observations concernant les Mammifères contemporains des *Æpyornis* à Madagascar. *Bulletin du Muséum National d'Histoire Naturelle*, **1**: 12–14.
- Flower, W.H. 1876. Extinct *Lemurina*. *Annals and Magazine of Natural History*, (14)**17**: 323–328.
- Geoffroy Saint-Hilaire, É. 1812. Note sur trois dessins de Commerçon, représentant des quadrumanes d'un genre inconnu. *Annales du Muséum National d'Histoire Naturelle, Paris*, **19**: 171–175.
- Gervais, P. 1876. *Zoologie et paléontologie générales. Deuxième série*. 72 pp. Arthus Bertrand, Libraire-Éditeur, Libraire de la Société de Géographie, Paris.

- Godfrey, L.R. & Irwin, M.T. 2007. The evolution of extinction risk: past and present anthropogenic impacts on the primate communities of Madagascar. *Folia Primatologica*, **78**: 405–419.
- Godfrey, L.R. & Jungers, W.L. 2002. Quaternary fossil lemurs. In Hartwig, W.C. (Ed.), *The primate fossil record*. 530 pp. Cambridge University Press, Cambridge, England.
- Godfrey, L.R., Jungers, W.L. & Burney, D.A. 2010. Subfossil lemurs of Madagascar. In Werdelin, L. & Sanders, W.J. (Eds.), *Cenozoic mammals of Africa*. 986 pp. University of California Press, Berkeley, California.
- Godfrey, L.R., Simons, E.L., Chatrath, P.J. & Rakotosamimanana, B. 1990. A new fossil lemur (*Babakotia*, Primates) from northern Madagascar. *Comptes Rendus de l'Académie des Sciences*, (2)**310**: 81–87.
- Godfrey, L.R., Sutherland, M.R., Paine, R.R., Williams, F.L., Boy, D.S. & Vuillaume-Randriamanantena, M. 1995. Limb joint surface areas and their ratios in Malagasy lemurs and other mammals. *American Journal of Physical Anthropology*, **97**: 11–36.
- Gommery, D., Ramanivosoa, B., Tombomiadana-Raveloson, S., Randrianantenaina, H. & Kerloc'h, P. 2009. Une nouvelle espèce de lémurien géant subfossile du Nord-Ouest de Madagascar (*Palaeopropithecus kelyus*, Primates). *Comptes Rendus Palevol*, **8**: 471–480.
- Grandidier, G. 1899. Description d'ossements de Lémuriens disparus. *Bulletin du Muséum National d'Histoire Naturelle*, **5**: 344–348.
- Grandidier, G. 1905. Recherches sur les lémuriens disparus et en particulier sur ceux qui vivaient à Madagascar. *Nouvelles Archives du Muséum d'Histoire Naturelle*, (4)**7**: 1–142.
- Jungers, W.L., Godfrey, L.R., Simons, E.L. & Chatrath, P.S. 1995. Subfossil *Indri indri* from the Ankarana Massif of northern Madagascar. *American Journal of Physical Anthropology*, **97**: 357–366.
- Jungers, W.L., Godfrey, L.R., Simons, E.L., Chatrath, P.S. & Rakotosamimanana, B. 1991. Phylogenetic and functional affinities of *Babakotia* (Primates), a fossil lemur from northern Madagascar. *Proceedings of the National Academy of Sciences*, **88**: 9082–9086.
- Lamberton, C. 1948. Contribution à la connaissance de la faune subfossile de Madagascar: Note XVII. Les Pachylemurs. *Bulletin de l'Académie Malgache*, (n.s.)**27**: 7–22.
- Lorenz von Liburnau, L. 1901. Über einige Reste ausgestorbener Primaten von Madagaskar. *Denkschriften der Kaiserlichen Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Klasse*, **70**: 1–15.
- Miall, L.C. 1875. [Review of] Filhol, M. H. Nouvelles observations sur les Mammifères des gisements de phosphates de chaux (Lémuriens et Pachylémuriens). [Mammals from the phosphate-of-lime deposits.] Ann. Sci. Geol. t. v. art. 4, pp. 1–36, plates 7, 8. In Whitaker, W. (Ed.), *The geological record for 1874, an account of works on geology, mineralogy, and palaeontology published during the year*. 397 pp. Taylor and Francis, London.
- Mittermeier, R.A., Ganzhorn, J.U., Konstant, W.R., Glander, K., Tattersall, I., Groves, C.P., Rylands, A.B., Hapke, A., Ratsimbazafy, J., Mayor, M.I., Louis, E.E., Jr., Rumpler, Y., Schwitzer, C. & Rasoloarison, R.M. 2008. Lemur diversity in Madagascar. *International Journal of Primatology*, **29**: 1607–1656.
- Orlando, L., Calvignac, S., Schnebelen, C., Douady, C.J., Godfrey, L.R. & Hänni, C. 2008. DNA from extinct giant lemurs links archaeolemurids to extant indriids. *BMC Evolutionary Biology*, **8**: 1–9.
- Palmer, T.S. 1904. Index generum mammalium. A list of the genera and families of mammals. *North American Fauna*, **23**: 1–984.
- Perez, V., Godfrey, L., Nowakkemp, M., Burney, D., Ratsimbazafy, J. & Vasey, N. 2005. Evidence of early butchery of giant lemurs in Madagascar. *Journal of Human Evolution*, **49**: 722–742.
- Polk, J.D., Williams, S.A., Peterson, J.V., Roseman, C.C. & Godfrey, L.R. 2010. Subchondral bone apparent density and locomotor behavior in extant primates and subfossil lemurs *Hadropithecus* and *Pachylemur*. *International Journal of Primatology*, **31**: 275–299.
- Shapiro, L.J., Seiffert, C.V., Godfrey, L.R., Jungers, W.L., Simons, E.L. & Randria, G.F. 2005. Morphometric analysis of lumbar vertebrae in extinct Malagasy strepsirrhines. *American Journal of Physical Anthropology*, **128**: 823–839.

- Shoshani, J., Groves, C.P., Simons, E.L. & Gunnell, G.F.** 1996. Primate phylogeny: morphological vs molecular results. *Molecular Phylogenetics and Evolution*, **5**: 102–154.
- Simons, E.L., Godfrey, L.R., Jungers, W.L., Chatrath, P.S. & Ravaoarisoa, J.** 1995. A new species of *Mesopropithecus* (Primates: Palaeopropithecidae) from northern Madagascar. *International Journal of Primatology*, **16**: 653–682.
- Smith, G.E.** 1903. On the morphology of the brain in the Mammalia, with special reference to that of the lemurs, recent and extinct. *Transactions of the Linnean Society of London, Zoology*, (2)**8**: 319–432.
- Standing, H.F.** 1904. Rapport sur des ossements sub-fossiles provenant d'Ampasambazimba. 1. – Les Lémuriens (Suite). *Bulletin de l'Académie Malgache*, **3**: 305–310.
- Tardieu, C. & Jouffroy, F.K.** 1979. Les surfaces articulaires fémorales du genou chez les Primates: étude préliminaire. *Annales des Sciences Naturelles, Zoologie*, (13)**1**: 23–38.
- Tattersall, I.** 1973. Cranial anatomy of the Archaeolemurinae (Lemuroidea, Primates). *Anthropological Papers of the American Museum of Natural History*, **52**: 1–110.
- Tattersall, I.** 1982. *The Primates of Madagascar*. 382 pp. Columbia University Press, New York.
- Turvey, S.T.** 2009. Holocene mammal extinctions. In Turvey, S.T. (Ed.), *Holocene extinctions*. 352 pp. Oxford University Press, Oxford.
- Virah-Sawmy, M., Willis, K.J. & Gillson, L.** 2010. Evidence for drought and forest declines during the recent megafaunal extinctions in Madagascar. *Journal of Biogeography*, **37**: 506–519.

Acknowledgement of receipt of this application was published in BZN **68**: 94.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).